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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/766,787

01/28/2004

Shaomin Samuel Mo

MATI-238US

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VALLEY FORGE, PA 19482-0980

EXAMINER

AGHDAM, FRESHTEH N

ART UNIT

PAPER NUMBER

2611

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DELIVERY MODE

08/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/766,787

Applicant(s)

MO ET AL.

Examiner

Freshteh N. Aghdam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 6-7, 9-12, 14-15, 18-20, and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Walker et al (US 7,236,464).

As to claims 1, 10, and 18, Walker discloses a method of and/ or an apparatus for improving data transmission to a receiver utilizing multiple bands (Abstract) comprising: mapping a bit stream within the data stream to a first band of the multiple bands (Col. 2, lines 42-67; Col. 13, lines 12-49); mapping the bit stream to a second band of the multiple bands (responsive to the reception of the error indicator from the receiver), wherein the first and second bands are non-overlapping (Col. 4, lines 15-23); and transmitting the bit stream in the first band and the bit stream in the second band for receipt by the receiver (Col. 2, lines 42-67; Col. 11, lines 29-32; Col. 13, lines 12-49).

As to claims 2 and 11, Walker discloses that method and/ or apparatus is for use in an ultra-wideband (UWB) communication system, which utilizes a plurality of UWB multi-bands and wherein transmitting comprises transmitting the bit stream in the first

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band via a first UWB multi-band of the plurality of the plurality of multi-bands and the bit stream in the second band via a second UWB multi-band of the plurality of UWB multi-bands (Col. 2, lines 42-67; Col. 3, lines 1-11; Col. 5, lines 7-17; Col. 13, lines 12-49).

As to claims 3, 12, 19, and 24, Walker further discloses receiving a received error indicator corresponding to the bit stream in the first band, wherein the bit stream is mapped to the second band and transmitted in the second band only responsive to receipt of the received error indicator (Col. 13, lines 12-49).

As to claims 6 and 14, Walker further discloses that the bit stream is mapped to the first band in a frame time and the bit stream is mapped to the second band in a subsequent frame time to the frame time in which the bit stream is mapped to the first band (e.g. in response to retransmission request; Col. 13, lines 12-49).

As to claims 7, 9, 15, and 20, Walker discloses a method of and/ or an apparatus for improving data transmission to a receiver utilizing multiple bands (Abstract) comprising: mapping a portion of a bit stream within the data stream to a first band of the multiple bands and the portion of the input bit stream to a second band of the multiple bands (Col. 13, lines 12-49) receiving the bit stream in the first band and the bit stream in the second band, the received bit streams corresponding to the portion of the bit stream (Col. 11, lines 29-32; Col. 13, lines 12-49); demapping the first band including the received bit stream to obtain a first band bit stream corresponding to the input bit stream (Col. 13, lines 12-49); inherently demapping the second band including the other bit stream to obtain a second band bit stream corresponding to the second bit stream (e.g. responsive to the error detection result of the first band; Col. 13, lines 12-49); and

processing the first and second band bit streams to yield the portion of the input bit stream (Fig. 5).

As to claim 23, Walker discloses a computer readable medium including software (Col. 16, lines 33-65) to improve data transmission to a receiver utilizing multiple bands (Abstract) comprising: mapping a bit stream within the data stream to a first band of the multiple bands (Col. 2, lines 42-67; Col. 13, lines 12-49); mapping the bit stream to a second band of the multiple bands, wherein the first and second bands are non-overlapping (Col. 4, lines 15-23); and transmitting the bit stream in the first band and the bit stream in the second band for receipt by the receiver (Col. 2, lines 42-67; Col. 11, lines 29-32; Col. 13, lines 12-49).

As to claim 25, Walker discloses a computer readable medium including software (Col. 16, lines 33-65) to improve data transmission to a receiver utilizing multiple bands (Abstract) comprising: mapping a portion of a bit stream within the data stream to a first band of the multiple bands and the portion of the input bit stream to a second band of the multiple bands (Col. 13, lines 12-49) receiving the bit stream in the first band and the bit stream in the second band, the received bit streams corresponding to the portion of the bit stream (Col. 13, lines 12-49); demapping the first band including the received bit stream to obtain a first band bit stream corresponding to the input bit stream (Col. 11, lines 29-32; Col. 13, lines 12-49); inherently demapping the second band including the other bit stream to obtain a second band bit stream corresponding to the second bit stream (e.g. responsive to the error detection result of the first band; Col. 13, lines 12-

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49); and processing the first and second band bit streams to yield the portion of the input bit stream (Fig. 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 16-17, 21-22, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al, and further in view of Son et al (US 2003/0189892).

As to claims 8, 16, and 21, Walker discloses receiving symbols in the first band and symbols in the second band (e.g. by requesting retransmission) and processing the symbols to yield the portion of the input bit stream. Walker is not explicit about combining symbols in the first band with the symbols in the second frequency band; and processing the combined symbols to yield the portion of the input bit stream. Son discloses a method and/ or apparatus for data recovery utilizing retransmission request protocol, wherein the symbols of the retransmission signal is combined with the initial transmission signal prior to decoding (e.g. recovering the original transmitted signal; Par. 35). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Son with Walker in order to increase possibility of successful decoding by combining the previously transmitted signal(s) with the current retransmitted signal(s).

As to claims 17, 22, and 27, Walker discloses that the transmitter maps the portion of the input bit stream to the second band responsive to the received error detection signal that is detected in the first band (Col. 11, lines 29-32; Col. 13, lines 12-49).

Note: Since dependent claims 4-5 and 13 are directed to a different embodiment of the invention as disclosed in the disclosure of the invention (Par. 35); therefore, the examiner had to interpret the phrase "the second band" differently in view of dependent claims 4-5 and 13.

Claims 1, 4-5, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al.

As to claims 1, 4-5, 10, and 13, Walker discloses a method of and/ or an apparatus for improving data transmission to a receiver utilizing multiple bands (Abstract) comprising: mapping a bit stream within the data stream to a first band of the multiple bands; and transmitting the bit stream in the first band of the multiple bands (Col. 2, lines 42-67; Col. 13, lines 12-49). Walker is silent about mapping the same bit stream to a second band of the multiple bands substantially concurrently, wherein the first and second bands are non-overlapping. However, one of ordinary skill in the art would recognize that transmitting the same bit stream on a second band simultaneously is known in the art as frequency diversity where the same signal is transmitted on multiple bands in order to improve data integrity; and also, it is a design requirement to transmit the same signal on multiple non-overlapping bands rather than overlapping

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bands since transmitting signals on overlapping bands allows improvement in spectrum efficiency and transmitting signals on non-overlapping bands allows improvement in interference reduction. Therefore, it would have been obvious to one of ordinary skill in the art to transmit the same signal on a first and second band substantially concurrently, wherein the first and second bands are non-overlapping in order to improve data integrity and allow improvement in interference reduction.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Miyoshi (US 2004/0125882) see abstract.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is 571-272-6037. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Freshteh Aghdam
Examiner
Art Unit 2611

August 1, 2007


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER